

Member Communication Experience

Designing For A Building's Entire Life: Why AEC Professionals Must Confront Invisible Obsolescence

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Architects, engineers, and contractors have always operated with a dual obligation: deliver a building that meets code on day one, and design for longevity. The first obligation is well-understood. The second is becoming considerably more complicated. A new class of building deficiency is emerging across the commercial real estate market, one that is not visible at project closeout, does not show up on a punchlist, and cannot be resolved through a warranty claim. It is the deficiency of invisible obsolescence.

Buildings that lack IoT-integrated mechanical systems, verifiable energy performance records, and the digital infrastructure to demonstrate ongoing compliance are increasingly being treated by lenders, insurers, and institutional tenants as compromised assets regardless of their physical condition. For design-build and AEC professionals, this shift redefines what it means to deliver a complete project.

THE 2026 REGULATORY BASELINE HAS MOVED

The regulatory environment arriving in 2026 is not a single mandate but a convergence of requirements across multiple jurisdictions. California's updated Title 24, effective January 1, 2026, raises the bar on electrification, mechanical efficiency, and indoor air quality. New York City's [2025 Energy Conservation Code](#), effective March 30, 2026, applies updated ASHRAE 90.1 standards to new and substantially altered commercial buildings. Nationally, JLL research projects more than 40 U.S. cities will have [active building performance](#)



[standards](#) in place by 2026, covering the majority of large commercial buildings nationwide.

For AEC professionals, this matters at the design stage, not the facilities management stage. A building delivered today without the mechanical integration and digital infrastructure required to demonstrate ongoing compliance will create liability for owners within months of occupancy. The architects and engineers of record who did not account for these requirements in their systems design will find themselves in difficult conversations.

The financial stakes of non-compliance are significant. Washington D.C.'s Building Energy Performance Standards carry maximum penalties of [\\$10 per square foot](#) of gross floor area.

Boston's BERDO 2.0 imposes \$1,000 per day for noncompliant buildings over 35,000 square feet. New York City's Local Law 97 charges \$268 per metric ton of CO2 over the allowable annual limit. These penalties are charges against net operating income, and they accrue from assets that AEC teams designed and handed over.

THE MECHANICAL SYSTEMS GAP

MERV 13 filtration has moved from a wellness amenity to a tenant expectation and, in many Class A markets, a lease requirement. IoT-enabled HVAC, metering, and building management systems are no longer premium specifications. They are the baseline that institutional operators, underwriters, and benchmarking ordinances assume will be in place.

Yet a significant portion of existing commercial stock and even recent vintage construction was delivered without these capabilities integrated at the systems level. Retrofitting IoT infrastructure into a building that was not designed for it is materially more expensive than specifying it correctly at the outset. For design-build teams, this is an argument for raising the standard of mechanical and electrical specifications now, ahead of owner requests, rather than delivering to yesterday's minimum.

There is also a performance accountability question emerging. Buildings commissioned to an energy use intensity target but lacking the real-time monitoring infrastructure to verify ongoing performance are not, in any meaningful sense, delivering on that target. Energy codes increasingly require continuous metering data retained at 15-minute intervals for multi-year periods. A building that cannot produce this data is a building that cannot demonstrate compliance, regardless of what the original energy model predicted.

DIGITAL CONTINUITY AS A DELIVERABLE

When commercial properties change hands, mechanical service records, commissioning reports, and equipment histories are routinely lost. For insurers, that gap is an underwriting risk. For lenders, there is a due diligence problem. For incoming owners, it means operating a building that's history is functionally unknown.

The AEC community is positioned to solve this by treating digital continuity as a project deliverable: specifying systems

that generate transferable operational data and commissioning to documentation standards that outlast the project team. Healthcare and biopharma facilities have operated this way for years out of necessity. Those same practices are now becoming competitive differentiators in the broader commercial market, and eventually, baseline requirements.

FROM DELIVERY TO LIFECYCLE DESIGN

The traditional AEC project model ends at substantial completion. The owner takes the keys, the O and M manuals go in a binder, and the design team moves on. That model is increasingly misaligned with how buildings are now underwritten and valued.

Lenders, insurers, and investors are evaluating operational trajectory, not just physical condition. A building with verified predictive maintenance records and compliance documentation is a fundamentally different asset than one without it, even at the same address and vintage. The difference shows in insurance premiums, cap rates, and lender appetite. Designing for digital continuity and anticipating the monitoring requirements of 2026 and beyond are no longer add-ons. They are components of responsible professional practice.

WHAT THE AEC COMMUNITY CAN DO NOW

The shift from deferred maintenance to asset obsolescence is not a future problem. It is a present one, and it is accelerating. AEC professionals who understand the operational and regulatory context their buildings will enter are better equipped to design for it. That means specifying mechanical systems with integrated monitoring capabilities, designing for data accessibility and transferability, commissioning to documentation standards that persist beyond project closeout, and advising owners on the compliance trajectory of their assets before the building is occupied rather than after the first penalty notice arrives.

The buildings being designed and delivered today will be navigating building performance standards, energy disclosure requirements, and tenant wellness mandates for the next 30 years. Whether those buildings are resilient assets or stranded ones will depend in large part on decisions made at the design stage, long before any of those requirements come due. 



About the Author

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